

Electronically filed on August 8, 2011

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

**Subject: Wallowa Falls Hydroelectric Project (FERC Project No. 308)
Response to Additional Information Request**

Dear Ms. Bose:

PacifiCorp Energy is submitting this letter, with enclosures, in response to the Federal Energy Regulatory Commission's (Commission) June 23, 2011 request for additional information related to infrastructure and operations at the Wallowa Falls Hydroelectric Project (Project). The Commission's specific information requests and the corresponding responses are provided below.

Operational Emergency Events

- 1) A description of the existing operational controls, if any, that provide for turbine flow bypass/continuation to the powerhouse tailrace when turbine generating unit trips offline and/or there is a loss of penstock pressure;

PacifiCorp Response:

Under all conditions of a forced outage (unit trip), the needle valve will close to a forty percent open position¹ and a deflector plate will engage to redirect the flow away from the turbine buckets and into the tailrace. The forty percent open position of the needle valve allows approximately six cubic feet per second (cfs) of water to bypass the turbine and flow through the draft tube providing a continuous flow into the tailrace channel. An automated control system was installed at the Project in 1996 and the headgate control system was further modified in 2000. The normal mode of operation is for the plant to be unattended. The Programmable Logic Control (PLC) controls the shutdown relay on the generator unit. Fault shutdowns of the generating unit are automatic. However, there is no generator protection control or feedback control scheme on the penstock headgate in the PLC routine for the Wallowa Falls powerhouse. This means that switchyard trips or line frequency trips result in a generator unit trip but do not result in a headgate closure.

There are two conditions that will initiate a generator lockout and a headgate closure; loss of voltage to the gate control cable or a 'low penstock pressure' indication. As a result of FERC mandated modifications, in 2000 a continuously energized solenoid valve was installed at the headgate and the powerhouse control system was modified to automatically close the headgate in the event that voltage is removed from the gate control cable. If voltage is removed from the cable due to a loss of power or damage to the wiring, the solenoid valve that operates the headgate is designed to release the oil from the cylinder

¹ Based on local plant operator knowledge.

whereby the weight of the headgate will cause it to drop to the closed position. The control system, as originally installed in 1996, will also automatically close the headgate in the event of a 'low penstock pressure' indication. A low penstock pressure indication would be the result of a penstock failure or a restricted inflow condition at the forebay intake caused by turbine outflow exceeding inflow. A pressure relay at the powerhouse senses any change in penstock pressure. If penstock pressure drops to approximately 430 pounds per square inch (psi), an alarm will be relayed to a hydro control operator, located at the Hydro Control Center in Ariel Washington, who can make adjustments to correct a problem without a headgate closure. Any drop in penstock pressure below approximately 375 psi, such as a penstock rupture, triggers an automated signal to the headgate causing it to close and the unit to trip and lockout. In either of these scenarios, the headgate closes, the needle valve closes to a forty percent open position, the deflector plate engages, and the volume of the penstock drains through the generating unit over the course of approximately two hours, resulting in the dewatering of the Project tailrace. Additionally, debris in the needle valve, nozzle or damage to the turbine requires the headgate be closed to allow for clearing of debris or equipment repair.

The penstock pressure, generator load, forebay level, needle valve percent open position, generator stator temperature, and front bearing temperature are all monitored by the Supervisory Control and Data Acquisition (SCADA) system at the powerhouse and are visible to a hydro control operator at the PacifiCorp Hydro Control Center located in Ariel Washington. Once the headgate at the forebay closes, it must be opened manually by a local operator at the forebay.

- 2) a description of the frequency of occurrence of any additional operational emergency events (e.g., power outages, lightning strikes, etc.) that occurred during the current license term that caused the turbine generating unit to trip offline; and

PacifiCorp Response:

The current FERC license for the Project was conveyed to PacifiCorp on August 28, 1986 for a period of 30 years commencing on March 1, 1986. PacifiCorp has reviewed its records of forced outages for the Wallowa Falls generating unit for the period of March 1, 1986 through July 30, 2011. The results of that review are enclosed as Attachment A - Wallowa Falls Hydroelectric Project Outage Report. Attachment A provides the forced outage start date and time, the cause of the outage, an explanation of what occurred, and the outage end date and time. The information provided in Attachment A from 1986 through 2000 is derived from hand-written operator log books. Beginning in January 2001, operator logs were recorded electronically.

- 3) a description of the frequency, magnitude, and duration of any flow reduction or dewatering events in the powerhouse tailrace that occurred as a result of operational emergency events during the current license term.

Attachment A includes all forced outages greater than fifteen minutes for the current license period. As explained above, under all generating unit trip conditions, with the exception of a loss of voltage to the headgate control cable, 'low penstock pressure indication' or an unanticipated malfunction at the headgate (e.g. lightning strike), water continues to flow, at

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approximately six cfs, past the turbine into the powerhouse tailrace channel. Any forced outages that resulted in a headgate closure are highlighted in blue on Attachment A. Once the headgate closes at the forebay it takes approximately two hours for the tailrace channel to completely dewater and it will remain dewatered until the headgate is manually opened and the unit brought back online. The duration of an outage is indicated on Attachment A by 'Outage Start' and 'Outage End'. Since the headgate control modifications in 2000, approximately 31 headgate closures have been recorded due to forced outages.

Penstock Characteristics

To conduct the required analysis of the potential for a penstock failure, we need more information about the characteristics of the penstock. Therefore, please provide the lengths and locations of above-ground and below-ground sections of penstock.

PacifiCorp Response:

From the Wallowa Falls dam a steel penstock extends 5,688 feet downstream to the powerhouse. The majority of the penstock is buried with two small above ground sections supported on timber crib trestles. Heading down slope from the dam the penstock is an 18-inch diameter buried steel pipe until it transitions to aboveground approximately 400 feet (pipe feet) below the dam. The elevated section of pipe is approximately 150 feet long and sits on a timber crib trestle structure. Continuing down slope the penstock is buried. At approximately 3000 feet down slope from the dam the penstock reduces to a 16-inch diameter pipe for the remainder of its length to the powerhouse. At approximately 4,500 feet below the dam the penstock crosses the East Fork Wallowa River on an elevated timber crib trestle. This section of elevated pipe is approximately 90 feet in length. The remainder of the penstock is buried to the powerhouse. The lower and upper penstock trestles were completely re-built in 1999 and 2000 respectively.

This letter and its enclosures have been filed electronically along with our Confidential Information Notice. The security classification of each component in this packet is shown in the enclosure list of both letter and Notice. A complete paper copy has also been sent to your office. If you have any questions concerning these documents, please contact Briana Weatherly at 503.813.7039 or Russ Howison at 503.813.6626.

Sincerely,



R. A. Landolt
Managing Director, Hydro Resources

RAL:cm

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Encl:

	Letter – Public
	CD Wallowa Falls Hydroelectric Project Outage Report for the Period 03-01-1986 thru 07-31-2011 –Public

eFile: Kimberly D. Bose, Secretary
Via eLibrary at www.ferc.gov

cd: Matt Cutlip
Federal Energy Regulatory Commission
805 SW Broadway, Suite 550
Portland, OR 97205

cd: See Attached Mailing List

Distribution List
Wallowa Falls Hydroelectric Project
Wallowa Falls Hydroelectric Project (FERC Project No. 308)
Response to Additional Information Request

Honorable Ron Wyden, United States Senate, 223 Dirksen Senate Office Building,
Washington, DC 20510-3703

FERC – Portland Regional Office, Attn: Matt Cutlip, 805 SW Broadway, Suite 550, Portland,
OR 97205

Confederated Tribes of the Colville Reservation, Tribal Chairman, P.O. Box 150, Nespelem,
WA 99155

Confederated Tribes of Umatilla, Tribal Chairman, Pendleton, OR 97801

Nez Perce, Tribal Chairman, P.O. Box 365, Lapwai, ID 83540-0365

Bureau of Indian Affairs, Northwest Regional Office, Attn: FERC Coordinator, 911
Northeast 11th Avenue, Portland, Oregon 97232-4169

Bureau of Indian Affairs, Umatilla Agency, P.O. Box 520, Pendleton, OR 97801

Nez Perce, Tribe, Keith Patrick Baird, P.O. Box 365, Lapwai, ID 83540-0365

Confederated Tribes of the Colville, Guy Mora, Interim Program Manager, P.O. Box 150
Nespelem, WA 99155

Confederated Tribes of Umatilla, Teara Farrow Ferman, Program Mgr, 46411 Timine Way
Pendleton, OR 97801

EPA Region 10, Oregon Operations Office, 805 SW Broadway, Suite 500, Portland, OR
97205

NMFS, Eastern Oregon Habitat Office, Attn: Spencer Hovekamp, 3502 Highway 30,
LaGrande, OR 97850

NMFS Northwest Regional Office, Hydropower Division, Attn: Keith Kirkendall, 1201 NE
Lloyd Blvd, Suite 1100, Portland, OR 97232

U.S. Army Corps of Engineers, PO Box 2870, Portland, OR 97208-2870

U.S. Bureau of Land Management, State Director, PO Box 2965, Portland, OR 97208-2965

U.S. Bureau of Reclamation, Klamath Basin Area Office, 6600 Washburn Way, Klamath Falls, OR 97603-9365

U.S. Coast Guard, MSO Portland, 6767 N Basin Avenue, Portland, OR 97217-3929

USDA FS Pacific Northwest Region, Attn: Mike Gerdes, 3160 NE 3rd St., Prineville, OR 97754

USDOI NPS, Pacific West Region, Outdoor Recreation Planner, Attn: Susan Rosebrough, 909 1st Avenue, Seattle, WA 98104-1059

USDOI, Office of Environ Policy & Compliance, Attn: Allison O'Brien, Acting Environmental Officer, 620 SW Main Street, Portland, OR 97205

USFWS, La Grande Fish & Wildlife Office, Attn: Gretchen Sausen, 3502 Hwy 30, LaGrande, OR 97850

Wallowa-Whitman National Forest, Attn: Steve Ellis, Forest Supervisor, P.O. Box 907, Baker City, OR 97814-3840

ODEQ, Water Quality Division, Attn: Marilyn Fonseca, 811 SW 6th Avenue, Portland, OR 97204

Oregon Dept of Agriculture, Attn: Jim Johnson, Natural Resources Division, 635 Capitol Street NE, Salem, OR 97301-2564

ODFW, Attn: Ken Homolka, 3406 Cherry Avenue, NE, Salem, OR 97303

ODFW, Attn: Tim Hardin, 3406 Cherry Avenue, NE, Salem, OR 97303

ODFW, Energy, Infrastructure & Eco, Systems Services Division, Attn: Joe Zisa, Division Supervisor, 2600 SW 98th Avenue, Ste 100, Portland, OR 97266-1325

ODFW, Northeast Region, Attn: NE Regional Hydro Coordinator, 107 – 20th St., La Grande, OR 97850

ODFW, Enterprise Field Office, Attn: Bill Knox, 65495 Alder Slope Road, Enterprise, OR 97828

Oregon Dept of Land Conservation and Development, Attn: Paul Curcio, Director, 635 Capital Street NE, Ste. 150, Salem, OR 97301

Oregon State Marine Board, 435 Commercial Street, NE, Salem, OR 97310-0001

OPRD, State Historic Preservation Officer – Roper Roper, 725 Summer St NE, Suite C, Salem OR 97301

OPRD, Attn: Alexandra Phillips, 725 Summer St NE, Suite C, Salem OR 97301

OSU Extension Services, Attn: Director, Extension Administration 101 Ballard Hall,
Corvallis, OR 97331-3606

Water Resources Department, Attn: Mary S. Grainey, 725 Summer St NE, Suite A, Salem
OR 97301

Public Utility Commission of Oregon, Attn: Secretary, P.O. Box 2148, Salem, OR 97308-
2148

Wallowa County Planning Dept., Attn: Harold Black, 101 S. River St., Room B-1, Enterprise,
OR 97828

City of Baker City, Attn: Planning Department, P.O. Box 650, Baker City, OR 97814

City Administrator's Office, 108 N.E. 1st St., Enterprise, OR 97828

City of Haines, P.O. Box 208, Haines, OR 97833

City of Joseph, Attn: Donna Warnock, City Recorder, PO Box 15, Joseph, OR 97846

City of La Grande, Planning Division, P.O. Box 670, La Grande, OR 97850

City of Lostine, 128 Highway 82, Lostine, OR 97857

City of Wallowa, Attn: Lori Waters, P.O. Box 487, Wallowa, OR 97885

Joseph Chamber of Commerce, P.O. Box 13, Joseph, OR 97846

Wallowa Lake Rural Fire Protection District, Attn: Chief Matt Walker, P.O. Box 922, Joseph,
OR 97846

Wallowa Soil and Water Conservation District, Attn: Cynthia Warnock, 401 N.E. 1st Street –
Suite E, Enterprise, OR 97846

Mid-West Electric Consumers Ass'n, Attn: Thomas P. Graves, 4350 Wadsworth Blvd – Suite
330, Wheat Ridge, CO 80033-4641

National Rural Electric Cooperative, Wallace F. Tillman, General Counsel, 4301 Wilson
Blvd, Arlington, VA 22203

Southwestern Power Resources Commission, Attn: Ted Coombes, Exec. Director, PO Box
471827, Tulsa, OK 74147-1827